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Jawaharlal Nehru

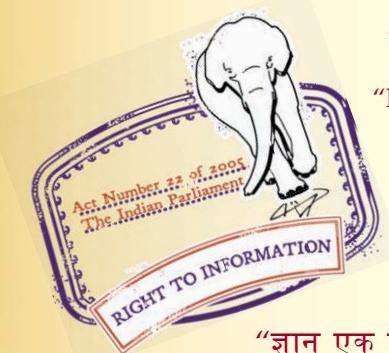
“Step Out From the Old to the New”

IS 416 (1983): Hockey Balls [PCD 22: Sports Goods]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaran Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard
SPECIFICATION FOR
HOCKEY BALLS
(Third Revision) .

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INDIAN STANDARDS INSTITUTION
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NEW DELHI 110002

Indian Standard
SPECIFICATION FOR
HOCKEY BALLS
(Third Revision)

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Indian Standard
SPECIFICATION FOR
HOCKEY BALLS
(*Third Revision*)

0. F O R E W O R D

0.1 This Indian Standard (Third Revision) was adopted by the Indian Standards Institution on 31 October 1983, after the draft finalized by the Sports Goods Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

0.2 This standard was first issued in 1953 as a tentative standard covering both cricket and hockey balls; and subsequently revised in 1963 and 1978. Third revision of this standard covers requirements of hockey balls only. The requirements of cricket balls have been covered in a separate standard.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers materials, dimensional and constructional requirements for two grades of hockey balls.

2. GRADES

2.1 The hockey balls shall be of the following two grades :

- a) Grade 1, and
- b) Grade 2.

3. MATERIAL

3.0 Materials used for the various components of hockey balls shall comply with the requirements for the appropriate grade.

*Rules for rounding off numerical values (*revised*).

3.1 Core

3.1.1 The core for Grade 1 shall be made from corkwood and new wool (3-4 ply), the yarn being 89 tex (10_s count) worsted. The proportion by mass of cork and wool shall be 2 : 1 (\pm 5 percent).

3.1.2 The core for Grade 2 shall be made from corkwood and new wool (3-4 ply), the yarn being 89 tex (10_s count) worsted. The proportion by mass of cork and wool shall be 5 : 4 (\pm 5 percent) alongwith a ready made centre of cork weighing 28 \pm 3 g.

3.2 Cover

3.2.1 The cover shall be made from cow hide/ox hide/bull hide leather, cut from the hind portion of butt in the case of Grade 1, and from fore portion of butt in the case of Grade 2.

3.2.2 The leather shall be well set, fully stretched alum or zirconium or combination tanned. The leather shall conform to IS : 5609-1983* except chemical requirements.

3.2.3 The cover shall be in 4/2 sections which shall be suitably reinforced inside with compressed leather.

4. SPECIFIC REQUIREMENTS

4.1 The hockey balls shall comply with the following requirements :

a) Circumference :

22.4 cm, *Min*

23.5 cm, *Max*

b) Mass :

156 g, *Min*

163 g, *Max*

c) Stitches :

i) *Inner stitching* — The two pairs of sections shall be invisibly stitched with 19 to 22 stitches each and pressed into spherical cups. The stitches shall be even.

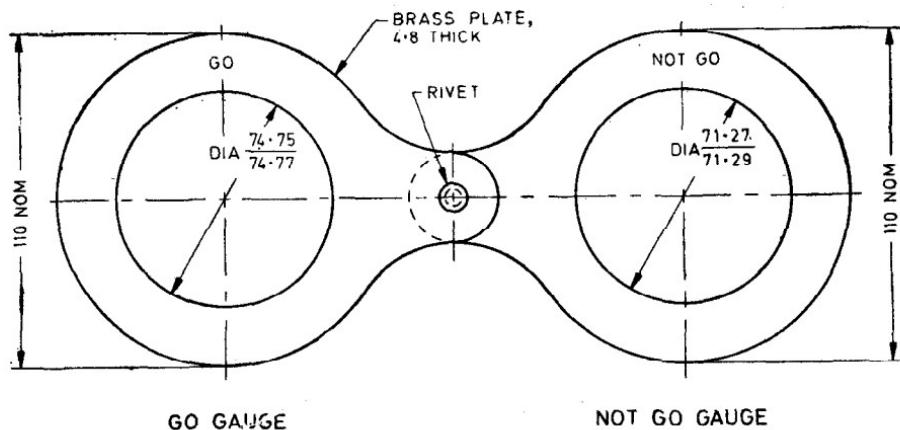
ii) *Outer stitching* — The minimum number of outer stitches shall be 80 in the case of Grade 1 and 75 in the case of Grade 2. The stitches shall be even.

The thread used for inner stitching shall be flax or cotton or equivalent quality of thread having a minimum

*Specification for leather for hockey ball (*first revision*).

breaking strength of 160 N (16 kgf). The thread for mouth and outer seam stitching shall have minimum breaking strength of 100 N (10 kgf) for Grade 1 and 60 N (6 kgf) for Grade 2.

- d) *Colour* — The colour shall be white.
- e) *Finish* — The finished balls shall be round. The finished balls shall be natural white or finished white.
- f) *Gauging* — The balls shall pass through the 'go gauge' but not through the 'not go gauge' shown in Fig. 1.



All dimensions in millimetres.

FIG. 1 GAUGE FOR HOCKEY BALL

5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 The sampling scheme and criteria for acceptance for hockey balls shall be as agreed to between the purchaser and the supplier. A suitable sampling scheme and criteria for acceptance is given in Appendix A.

6. DESIGNATION

6.1 The designation of a hockey ball shall indicate :

- a) Grade, and
- b) IS number.

Example :

A hockey ball of Grade 1 shall be designated as :
Hockey ball, Grade 1, IS : 416

7. MARKING

7.1 Unless otherwise required by the purchaser, each ball shall bear the manufacturer's name or his initials or trade-mark and grade in golden letters.

7.1.1 The balls may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. The ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8. PACKING

8.1 The balls shall be wrapped in moisture-proof paper, and packed in cardboard boxes in accordance with the best prevalent trade practice.

A P P E N D I X A

(Clause 5.1)

SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SAMPLING

A-1.1 Lot — In any consignment all the balls of the same grade and manufactured by the same firm shall be grouped together to constitute a lot.

A-1.2 Samples for test shall be selected at random from each lot in accordance with col 1 and 2 of Table 1.

A-2. INSPECTION AND CRITERIA FOR ACCEPTANCE

A-2.1 Each ball in the test sample shall first be examined for materials used in the construction as given in 3. If any ball in the test sample

is noticed to have been made up of materials other than those specified, all the balls in the lot shall be rejected.

TABLE 1 SIZE OF THE SAMPLE AND CRITERION FOR CONFORMITY
(Clause A-1.2)

NO. OF BALLS IN THE LOT (1)	NO. OF BALLS IN THE SAMPLE (2)	PERMISSIBLE NUMBER OF DEFECTIVE BALLS IN THE SAMPLE (3)
Up to 5	All	0
6 " 25	5	0
26 " 50	8	0
51 " 100	13	1
101 " 150	20	2
151 " 300	32	3
301 and above	50	5

A-2.2 If the balls are made up of the specified materials, then each ball of the test sample shall be tested for the dimensional and constructional requirements as given under 4.

A-2.3 During testing in A-2.2 the sample ball failing to satisfy any one or more of the requirements of 4.1 (a) to (f) shall be deemed as defective.

A-2.4 The lot shall be declared as conforming to this specification if the number of defective balls in the sample does not exceed the number given in col 3 of Table 1.

(*Continued from page 2*)

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